High-Performance Schools Workshop Panel Presentation

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March 23, 2006

Environmentally Responsive Site Planning

High-performance site features—

- Minimize environmental impact
  - Location to minimize transportation needs
  - Encourage walking and biking to school
- Serve as amenity for surrounding community
- Conserve and restore natural areas
- Minimize runoff and erosion
- Reduce “heat islands”
- Minimize light pollution
- Design to be outdoor learning laboratory

Orientation

- Orient building in east-west direction to optimize daylighting
- Maximize north- and south-facing windows for interior daylighting
- Minimize east- and west-facing windows to limit heat gain and glare

Preservation of Vegetation

- Reduce building footprint size
- Preserve existing vegetation
- Restore damaged vegetation

Reduce Heat Islands

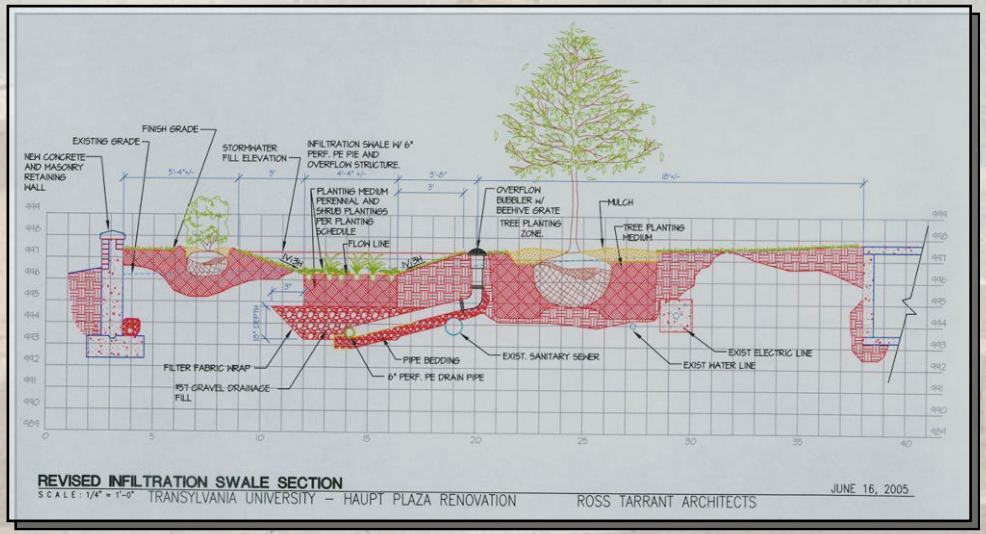
- Use trees to shade roads and parking lots
- Light-colored roofing

Reduce Light Pollution

- Select exterior light fixtures with covered tops
- Minimize nighttime sky glow

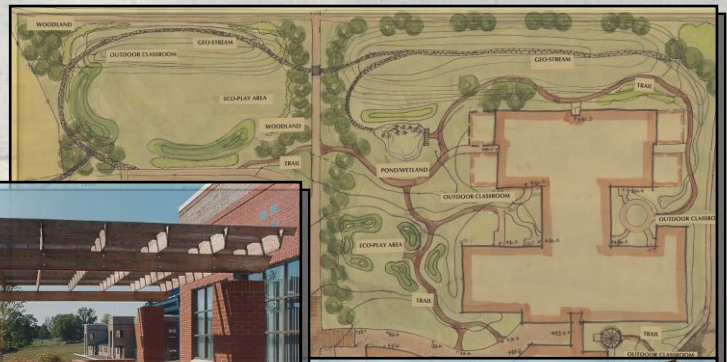
Storm Water & Erosion Control

- Minimize and slow storm water runoff
- Control erosion
- Filter storm water runoff



Design Outdoor Learning Laboratory

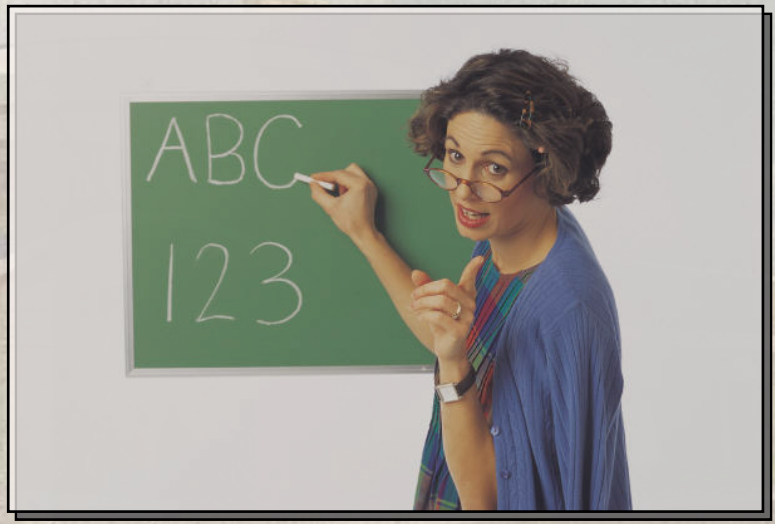
- Design site to be a laboratory for students
  - Science
  - Art
  - Math
  - Language
  - Exercise
- Connect the indoors to outdoors
- Provide seating and presentation areas
- Provide trails
- Create thematic garden and habitat
- Include monitoring devices
- Include recycling areas



Acoustics

Reasons Good Acoustics are Important—

- Noise interferes with teaching/learning process
- Noise is detrimental to concentration and understanding
- Shouting is unpleasant and fatiguing to teachers
- Higher student achievement
- Lower teacher absenteeism



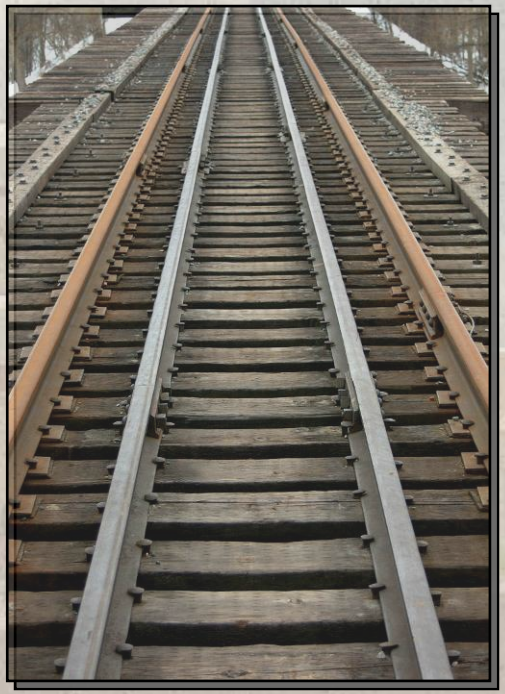
Acoustics

Noise that Should Be Minimized—

- Outside the building
  - Vehicles
  - Aircraft
  - Industry
  - HVAC equipment
- Inside the building
  - Gymnasiums
  - Music rooms
  - Mechanical equipment
  - Classroom noise

Limit Outside Noise

- Vehicles
- Aircraft
- Industry
- HVAC equipment



Limit Inside Noise

- Mechanical room
- Music room
- Gymnasium
- Cafeteria

Minimize Background Noise

- HVAC equipment
- Lighting
- Plumbing

Absorb Sound Within Classrooms

- Carpet
- Acoustical panels
- Acoustical ceilings

Sound Enhancement System

- Ensure all students hear equally
- Wireless microphone, receiver and amplifier
- Distribute sound equally around classroom

Environmentally Preferable Materials & Products

- Building materials can have significant impact
  - Toxic ingredients in materials emit harmful substances
  - Building construction and operation generates lots of waste
- Environmentally Preferable Materials and Products
  - Use durable, non-toxic materials that are high in recycled content
  - Prefer locally or regionally manufactured materials
  - Encouraging recycling in the school
  - Minimize waste during construction

Paint—
- Low VOC

Ceiling Tiles—
- 36-50% recycled content
- Regional manufacturer

Shelving—
- FSC-Certified wood
- Low-VOC adhesives
- Regional manufacturer

Carpet—
- 25%post-industrial, solution-dyed fibers
- 100% recyclable

Wall Base—
- Low emitting

Eliminate Materials that Pollute or Are Toxic During Manufacturing or Use

- Low VOC paint
- Eliminate HCFC refrigerants in HVAC systems
- Formaldehyde-free materials
- Low-toxic adhesives, grouts and caulks

Specify Materials that Are Environmentally Friendly

- Wood certified by Forest Stewardship Guidelines
- Locally manufactured products

Use Materials with High Recycled Content

- Ceiling tile
- Carpet
- Wood